

SEQUENCE LISTING

<110> BEIRNAERT, Els Anna Alice

<120> SINGLE DOMAIN ANTIBODIES DIRECTED AGAINST INTERFERON-GAMMA AND USES THEREFOR

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<140> US 10/534,345

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<150> PCT/BE03/00194

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Ala Arg Ile Leu Trp Thr Gly Ala Ser Arg Ser Tyr Ala Asn Ser Val
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Asp Gly Arg Phe Thr Val Ser Thr Asp Asn Ala Lys Asn Thr Val Tyr
65
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Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
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Ala Arg Ile Lys Trp Ser Gly Gly Ser Arg Ser Tyr Ala Asn Ser Val 50 55 60

Asp Gly Arg Phe Thr Val Ser Thr Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Leu Pro Ser Asn Ile Ile Thr Thr Asp Tyr Leu Arg Val Tyr Tyr 100 105 110

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Ser Arg Thr Pro Met Gly Trp Tyr Arg Gln Ala Pro Gly Lys Gln Arg 35 40 45

Glu Leu Val Ala Gly Ile Leu Thr Ser Gly Ala Thr Ser Tyr Ala Glu 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr 65 70 75 80

Val Tyr Leu Gl
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Glu Leu Val Ala Gly Ile Leu Ser Ser Gly Ala Thr Val Tyr Ala Glu 50 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr 65 70 75 80

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Glu Leu Val Ala Gly Ile Leu Ser Ser Gly Ala Thr Ala Tyr Ala Glu 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr 65 70 75 80

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Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Val Tyr Leu 65 70 75 80

Gln Met Asn Ser Leu Gln Pro Glu Asp Thr Ala Val Tyr Tyr Cys Asn 85 90 95

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Ala Gly Ile Ser Trp Asn Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val 50 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys
85 90 95

Ala Ser Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp 100 105 110

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Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys 85 90 95

Ala Ser Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp 100 105 110

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Ala Ala Ile Ser Trp Asn Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val 50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Ile Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys 85 90 95

Ala Ser Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Glu 100 105 110

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Asn Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Asp Phe Val 35 40 45

Ala Ala Ile Ser Trp Asn Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val 50 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys
85 90 95

Ala Ser Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp 100 105 110

Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Asn Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ala Ile Ser Trp Asn Gly Gly Ser Thr Tyr Tyr Asp Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Asn Asn Leu Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Asn Phe Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Cys Ala Ala Asn Pro Tyr Gly Ile Pro Gln Tyr Arg Glu Asn Arg 100 105 110

Tyr Asp Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Asn Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ala Ile Ser Trp Asn Gly Gly Ser Thr Tyr Tyr Asp Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Phe Gln Lys Leu Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Leu Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Cys Ala Ala Asn Pro Tyr Gly Ile Pro Gln Tyr Arg Glu Asn Arg 100 105 110

Tyr Asp Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Ala Ser Val Thr Trp Gly Phe Gly Ser Thr Ser Tyr Ala Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Lys Ala Lys Asp Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Thr Leu Glu Pro Asp Asp Thr Ser Val Tyr Tyr Cys 85 90 95

Ala Ser Ser Pro Arg Tyr Cys Ala Gly Tyr Arg Cys Tyr Val Thr Ala 100 105 110

Ser Glu Phe Asp Ser Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Ala Ala Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Leu 35 40 45

Ala Ser Val Ser Trp Gly Phe Gly Ser Thr Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ala Lys Asp Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Thr Leu Glu Pro Asp Asp Thr Ser Val Tyr Tyr Cys 85 90 95

Ala Ser Ser Pro Arg Tyr Cys Ala Gly Tyr Arg Cys Tyr Ala Thr Ala 100 105 110

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Ala Ser Val Thr Trp Gly Phe Gly Ser Thr Tyr Tyr Ala Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Lys Ala Lys Asp Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Thr Leu Glu Pro Asp Asp Thr Ser Ala Tyr Tyr Cys 85 90 95

Ala Ser Ser Pro Arg Tyr Cys Ala Gly Tyr Arg Cys Tyr Val Thr Ala 100 105 110

Ser Glu Phe Asp Ser Trp Gly Pro Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Ser Phe Ser Ser Tyr 20 25 30 Gly Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu His Glu Phe Val 35 40 45

Ala Gly Ile Trp Arg Ser Gly Val Ser Leu Tyr Tyr Thr Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Lys Met Thr Val Ser 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Glu Ala Thr Phe Pro Thr Trp Ser Arg Gly Arg Phe Ala Asp 100 105 110

Tyr Asp Tyr Arg Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Ser Leu Arg Leu Ser Cys Thr Ala Ser Gly Arg Ser Phe Ser Ser Tyr 20 25 30

Gly Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Asp His Glu Phe Val 35 40 45

Ala Gly Ile Trp Arg Ser Gly Val Ser Leu Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Lys Met Thr Val Ser 65 70 75 80

Leu Gln Met Asn Gly Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Glu Ala Thr Phe Pro Thr Trp Asn Arg Gly Thr Phe Ala Asp 100 105 110

Tyr Asp Tyr Arg Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

<210> 18

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Gly Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu His Glu Phe Val 35 40 45

Ala Gly Ile Trp Arg Ser Gly Val Ser Leu Tyr Tyr Ala Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Lys Met Thr Val Ser 65 70 75 80

Leu Gln Met Asn Gly Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Glu Ala Thr Phe Pro Thr Trp Asn Arg Gly Ser Phe Ala Asp 100 105 110

Tyr Asp Tyr Arg Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Gly Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu His Glu Phe Val 35 40 45

Ala Gly Ile Trp Arg Ser Gly Val Ser Leu Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Lys Met Thr Val Ser 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Glu Ala Thr Phe Pro Thr Trp Asn Arg Gly Arg Phe Ala Asp 100 105 110

Tyr Asp Tyr Ser Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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n Thr Gly Asp 1 5 10 15

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Arg Ile Gly Tyr Ser Gly Arg Ser Ile Ser Tyr Ala Thr Ser Val 50 55 60

Glu Gly Arg Phe Ala Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ser Leu Val Ser Gly Thr Leu Tyr Gln Ala Asp Tyr Trp Gly Gln 100 105 110

Gly Thr Gln Val Thr Val Ser Ser 115 120

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Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Gly Thr Phe Ser Arg Tyr 20 25 30

Ala Met Gly Trp Phe Arg Gln Pro Pro Gly Lys Glu Arg Asp Phe Val 35 40 45

Ala Arg Ile Gly Tyr Ser Gly Gln Ser Ile Ser Tyr Ala Thr Ser Val 50 55 60

Glu Gly Arg Phe Ala Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ser Leu Val Ser Gly Thr Leu Tyr Lys Pro Asn Tyr Trp Gly Gln 100 105 110

Gly Thr Gln Val Thr Val Ser Ser 115 120 <211> 121

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Leu Thr Tyr Thr Val Gly 20 25 30

Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile $35 \hspace{1cm} 40 \hspace{1cm} 45$

Ser Trp Ser Gly Gly Ser Ala Leu Tyr Ala Asp Ser Val Lys Gly Arg 50 55 60

Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr Leu Gln Met 70 75 80

Gly Ser Leu Glu Pro Glu Asp Thr Ala Tyr Tyr Ser Cys Ala Ala Pro 85 90 95

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Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile $35 \hspace{1cm} 40 \hspace{1cm} 45$

Asp Trp Ser Gly Gly Ser Ala Leu Tyr Ala Asp Ser Val Lys Gly Arg 50 60

Phe Thr Ile Ser Arg Asp Asn Thr Lys Asn Thr Val Tyr Leu Gln Met 65 70 75 80

Gly Ser Leu Glu Pro Glu Asp Thr Ala Val Tyr Trp Cys Ala Ala Pro 85 90 95

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Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Lys Gly Arg Phe Thr Ile Thr Leu Asp Asn Ala Lys Asn Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ser Arg Val Asp Asp Arg Val Ser Arg Gly Gln Gly Thr Gln Val 100 105 110

Thr Val Ser Ser 115 <210> 25 <211> 120 <212> PRT <213> Lama glama <400> 25 Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Ser Ser Phe Arg Met Gly Trp Phe Arg Arg Ala Pro Gly Glu Glu Arg Glu Phe Val Ala Phe Val Arg Ser Asn Gly Thr Ser Thr Tyr Tyr Ala Asp Ser Val 55 Glu Gly Arg Phe Thr Ile Thr Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 Leu Arg Met Asp Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 Ala Ala Aha Thr Arg Asp Tyr Gly Gly Ser Phe Asp Tyr Trp Gly Gln 105 Gly Thr Gln Val Thr Val Ser Ser 115 120

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Arg Met Gly Trp Phe Arg Arg Ala Pro Gly Glu Glu Arg Glu Phe Val 35 40 45

Ala Phe Val Arg Ser Asn Gly Thr Ser Thr Tyr Tyr Ala Asp Ser Val 50 60

Glu Gly Arg Phe Thr Ile Thr Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Arg Met Asp Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Ala Thr Arg Asp Tyr Gly Gly Ser Phe Asp Tyr Trp Gly Gln 100 105 110

Gly Thr Gln Val Ile Val Ser Ser 115 120

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Ala Met Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Ile Glu Trp Val 35 40 45

Ser Ser Ile Asn Asn Arg Asn Asp His Ile Thr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ala Arg Asp Asn Ala Asn Asn Ile Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ser Arg Val Asp Asp Arg Val Ser Arg Gly Gln Gly Thr Gln Val 100 105 110

Thr Val Ser Ser 115

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Gly Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Leu Val 35 40 45

Val Ala Ile Asn Arg Ser Gly Gly Ala Thr Ser Tyr Ala Thr Ser Val 50 55 60

Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Met Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Asn Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Arg Asp Pro Thr Arg Thr Tyr Ser Ser Tyr Phe Glu Tyr Thr 100 105 110

Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

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Ala Val Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ser Ile Ser Trp Gly Gly Gly Phe Thr Ala Phe Ala Asp Ser Met 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Thr His Thr Leu Glu Pro Asp Asp Thr Ser Val Tyr Tyr Cys 85 90 95

Ala Ser Ser Arg Arg Tyr Cys Thr Gly Tyr Arg Cys Tyr Ala Thr Ala 100 105 110

Ser Glu Phe Asp Ser Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Leu Val 35 40 45

Ala Ser Val Ser Thr His Ser Asn Thr Asn Tyr Ala Asp Ser Val Lys 50 60

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr Leu 70 75 80

Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys Asn 85 90 95

Ala Gly Gly Arg Tyr Ser Ala Arg Val Tyr Trp Gly Gln Gly Thr Gln
100 105 110

Val Thr Val Ser Ser 115

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Ala Ile Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Gly Val 35 40 45

Ser Cys Ile Ser Ser Ser Asp Gly Val Thr Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Asp Ser Leu Pro Leu Cys Phe Ser Gly Ser Tyr Tyr His Pro

Tyr Glu Tyr Asp Tyr Leu Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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Ala Ile Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Leu Glu Gly Val\$35\$ 40 45

Ser Met Ile Asn Ser Gly Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val50 60

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Asp Gln Asn Ala Arg Leu Phe Arg Leu Trp Val Val Thr Gly 100 105 110

Thr Gly Pro Val Asp Asn Ala Leu Asp Ala Trp Gly Gln Gly Thr Leu 115 120 125

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr 20 25 30

Asp Ile Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Glu Val 35 40 45

Ser Cys Ile Ser Asn Ile Asp Gly Ser Thr Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asn Ala Lys Asn Thr Ala Tyr 65 70 75 80

Leu Gln Met Ser Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Asp Ile Tyr Val Arg Cys Val His Gly Leu Ser Pro Gly Tyr 100 105 110

Trp Gly Gln Gly Ile Gln Val Thr Val Ser Ser 115 120

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Gly Ile Thr Ser Ser Gly Gly Tyr Thr Tyr Tyr Ala Asp Ser Val50 55

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Gly Phe Arg Val Gly Ile Ala Leu Asp Leu Lys Gly Arg Tyr 100 105 110

Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

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<400> 35

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Ala Val Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Gln Phe Val 35 40 45

Ala Ala Ile Gly Trp Ser Tyr Gly Asn Thr Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Ile Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Gly Asp Thr Tyr Leu Thr Gly Arg Pro Asn Glu Tyr Ala Tyr 100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

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<211> 115
<212> PRT
<213> Lama glama
<400> 36
Gln Val Gln Leu G
1 5
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Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Phe Ser Arg Phe 20 25 30

Gly Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Val Glu Trp Val 35 40 45

Ser Gly Ile Ser Ser Leu Gly Asp Ser Thr Leu Tyr Ala Asp Ser Val $50 \\ 55 \\ 60$

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Thr Ile Gly Gly Ser Leu Asn Pro Gly Gly Gln Gly Thr Gln Val Thr 100 105 110

Val Ser Ser 115

<210> 37

<211> 115

<212> PRT

<213> Lama glama

<400> 37

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Arg Asn Phe 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Glu Pro Glu Trp Val 35 40 45

Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Ser Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Gln Val Thr 100 105 110

Val Ser Ser 115

<210> 38

<211> 114

<212> PRT

<213> Lama glama

<400> 38

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Thr Cys Thr Ala Ser Gly Phe Thr Phe Ser Ser Phe 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ser Ala Ile Ser Ser Asp Ser Gly Thr Lys Asn Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Lys Met Leu Phe 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Val Ile Gly Arg Gly Ser Pro Ser Ser Gln Gly Thr Gln Val Thr Val 100 105 110

Ser Ser

<210> 39

<211> 114

<212> PRT

<213> Lama glama

<400> 39

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Thr Cys Thr Ala Ser Gly Phe Thr Phe Arg Ser Phe 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ser Ala Ile Ser Ala Asp Gly Ser Asp Lys Arg Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Gly Lys Lys Met Leu Thr 65 70 75 80

Leu Asp Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Val Ile Gly Arg Gly Ser Pro Ala Ser Gln Gly Thr Gln Val Thr Val 100 105 110

Ser Ser

<210> 40

<211> 253

<212> PRT

<213> Lama glama

<400> 40

Gln Val 1	Gln 1	Leu	Gln 5	Glu	Ser	Gly	Gly	Gly 10	Leu	Val	Gln	Pro	Gly 15	Gly
Ser Leu		Leu 20	Ser	Cys	Glu	Ala	Ser 25	Gly	Phe	Thr	Phe	Ser 30	Arg	Phe
Gly Met	Thr '	Trp	Val	Arg	Gln	Ala 40	Pro	Gly	Lys	Gly	Val 45	Glu	Trp	Val
Ser Gly 50	Ile	Ser	Ser	Leu	Gly 55	Asp	Ser	Thr	Leu	Tyr 60	Ala	Asp	Ser	Val
Lys Gly 65	Arg :	Phe	Thr	Ile 70	Ser	Arg	Asp	Asn	Ala 75	Lys	Asn	Thr	Leu	Tyr 80
Leu Gln	Met 2	Asn	Ser 85	Leu	Lys	Pro	Glu	Asp 90	Thr	Ala	Val	Tyr	Tyr 95	Cys
Thr Ile	_	Gly 100	Ser	Leu	Asn	Pro	Gly 105	Gly	Gln	Gly	Thr	Gln 110	Val	Thr
Val Ser	Ser	Glu	Pro	Lys	Thr	Pro 120	Lys	Pro	Gln	Pro	Ala 125	Ala	Ala	Gln
Val Lys 130	Leu	Glu	Glu	Ser	Gly 135	Gly	Gly	Leu	Val	Gln 140	Ala	Gly	Gly	Ser
Leu Arg 145	Leu	Ser	Cys	Ala 150	Ala	Ser	Gly	Arg	Thr 155	Phe	Asn	Asn	Tyr	Asn 160
Met Gly	Trp	Phe	Arg 165	Gln	Ala	Pro	Gly	Lys 170	Glu	Arg	Glu	Phe	Val 175	Ala
Ala Ile		Trp 180	Asn	Gly	Gly	Ser	Thr 185	Tyr	Tyr	Asp	Asp	Ser 190	Val	Lys
Gly Arg	Phe 195	Thr	Ile	Ser	Arg	Asp 200	Asn	Ala	Asn	Asn	Leu 205	Val	Tyr	Leu
Gln Met 210	Asn	Ser	Leu	Asn	Phe 215	Glu	Asp	Thr	Ala	Val 220	Tyr	Tyr	Cys	Ala
Cys Ala 225	Ala	Asn	Pro	Tyr 230	Gly	Ile	Pro	Gln	Tyr 235	Arg	Glu	Asn	Arg	Tyr 240
Asp Phe	Trp	Gly	Gln 245	Gly	Thr	Gln	Val	Thr 250	Val	Ser	Ser			

<210> 41

<211> 247

<212> PRT

<213> Lama glama

<400> 41

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Asn 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Arg Asn Phe 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Glu Pro Glu Trp Val 35 40 45

Ser Ser Ile Ser Gly Ser Gly Ser Asn Thr Ile Tyr Ala Asp Ser Val 50 55 60

Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Ser Thr Leu Tyr 65 70 75 . 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Gln Val Thr 100 105 110

Val Ser Ser Glu Pro Lys Thr Pro Lys Pro Gln Pro Ala Ala Ala Ala 115 120 125

Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Thr Gly Asp Ser 130 135 140

Leu Arg Leu Ser Cys Val Ala Ser Gly Gly Thr Phe Ser Arg Tyr Ala 145 150 155 160

Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala 165 170 175

Arg Ile Gly Tyr Ser Gly Arg Ser Ile Ser Tyr Ala Thr Ser Val Glu 180 185 190 Gly Arg Phe Ala Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr Leu 195 200 205

Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys Ala 210 215 220

Ser Leu Val Ser Gly Thr Leu Tyr Gln Ala Asp Tyr Trp Gly Gln Gly 225 230 235 240

Thr Gln Val Thr Val Ser Ser 245

<210> 42

<211> 252

<212> PRT

<213> Lama glama

<400> 42

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Thr Cys Thr Ala Ser Gly Phe Thr Phe Ser Ser Phe 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ser Ala Ile Ser Ser Asp Ser Gly Thr Lys Asn Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Lys Met Leu Phe 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Val Ile Gly Arg Gly Ser Pro Ser Ser Gln Gly Thr Gln Val Thr Val 100 105 110

Ser Ser Glu Pro Lys Thr Pro Lys Pro Gln Pro Ala Ala Gln Val 115 120 125

Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu 130 135 140 Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Thr Tyr Asn Met 145 150 155 160

Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Gly
165 170 175

Ile Ser Trp Asn Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val Glu Gly
180 185 190

Arg Phe Thr Ile Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr Leu Gln
195 200 205

Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys Ala Ser 210 215 220

Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp Tyr Asp 225 230 235 240

Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 245 250

<210> 43

<211> 115

<212> PRT

<213> Lama glama

<400> 43

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Asp Phe Ser Val Ser 20 25 30

Trp Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Glu Ile Asn Thr Asn Gly Leu Ile Thr Lys Tyr Val Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr 65 70 75 80

Leu Gln Met Asp Ser Leu Ile Pro Glu Asp Thr Ala Leu Tyr Tyr Cys 85 90 95

Ala Arg Ser Pro Ser Gly Ser Phe Arg Gly Gln Gly Thr Gln Val Thr 100 105 110

Val Ser Ser 115

<210> 44

<211> 121

<212> PRT

<213> Lama glama

<400> 44

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Arg Val Asn 20 25 30

Ala Met Gly Trp Tyr Arg Gln Val Pro Gly Asn Gln Arg Glu Phe Val 35 40 45

Ala Ile Ile Thr Ser Gly Asp Asn Leu Asn Tyr Ala Asp Ala Val Lys 50 55 60

Gly Arg Phe Thr Ile Ser Thr Asp Asn Val Lys Lys Thr Val Tyr Leu 70 75 80

Gln Met Asn Val Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys Asn 85 90 95

Ala Ile Leu Gln Thr Ser Arg Trp Ser Ile Pro Ser Asn Tyr Trp Gly 100 105 110

Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 45

<211> 123

<212> PRT

<400> 45

Gin Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 10 15

Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Tyr 20 25 30

Trp Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ser Thr Val Asn Thr Asn Gly Leu Ile Thr Arg Tyr Ala Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Tyr Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Ser Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Thr Lys Val Val Pro Pro Tyr Ser Asp Asp Ser Arg Thr Asn Ala Asp 100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 46

<211> 129

<212> PRT

<213> Lama glama

<400> 46

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp His 20 25 30

Ser Gly Tyr Thr Tyr Thr Ile Gly Trp Phe Arg Gln Ala Pro Gly Lys 35 40 45

Glu Arg Glu Phe Val Ala Arg Ile Tyr Trp Ser Ser Gly Asn Thr Tyr 50 55 60

Tyr Ala Asp Ser Val Lys Gly Arg Phe Ala Ile Ser Arg Asp Ile Ala 65 70 75 80

Lys Asn Thr Val Asp Leu Thr Met Asn Asn Leu Glu Pro Glu Asp Thr 85 90 95

Ala Val Tyr Tyr Cys Ala Ala Arg Asp Gly Ile Pro Thr Ser Arg Ser 100 105 110

Val Glu Ser Tyr Asn Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser 115 120 125

Ser

<210> 47

<211> 127

<212> PRT

<213> Lama glama

<400> 47

Gln Val Gln Leu Gln Asp Ser Gly Gly Gly Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Val Ser Gly Arg Thr Phe Ser Ala His 20 25 30

Ser Val Tyr Thr Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg 35 40 45

Glu Phe Val Ala Arg Ile Tyr Trp Ser Ser Ala Asn Thr Tyr Tyr Ala 50 55 60

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn 65 70 75 80

Thr Val Asp Leu Leu Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val 85 90 95

Tyr Tyr Cys Ala Ala Arg Asp Gly Ile Pro Thr Ser Arg Thr Val Gly
100 105 110

Ser Tyr Asn Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

<210> 48

<211> 124

<212> PRT

<213> Lama glama

<400> 48

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Arg Val Asn 20 25 30

Ala Met Gly Trp Tyr Arg Gln Val Pro Gly Asn Gln Arg Glu Phe Val 35 40 45

Ala Ile Ile Thr Ser Ser Asp Thr Asn Asp Thr Thr Asn Tyr Ala Asp $50 \hspace{1.5cm} 55 \hspace{1.5cm} 60$

Ala Val Lys Gly Arg Phe Thr Ile Ser Thr Asp Asn Val Lys Lys Thr 65 70 75 80

Val Tyr Leu Gln Met Asn Val Leu Lys Pro Glu Asp Thr Ala Val Tyr 85 90 95

Tyr Cys Asn Ala Val Leu Gln Thr Ser Arg Trp Ser Ile Pro Ser Asn 100 105 110

Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 49

<211> 123

<212> PRT

<213> Lama glama

<400> 49

Gln Val Gln Leu Gln Asp Ser Gly Gly Gly Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Thr Thr Ser Gly Arg Thr Ile Ser Val Tyr 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ser Ile Ser Gly Ser Gly Ala Ile Thr Pro Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Asn Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Ser Arg Tyr Ala Arg Tyr Arg Asp Val His Ala Tyr Asp Tyr 100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 50

<211> 124

<212> PRT

<213> Lama glama

<400> 50

Gln Val Gln Leu Gln Asp Ser Gly Gly Gly Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Thr Arg Thr Phe Ser Arg Tyr 20 25 30

Val Val Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Thr Ile Ser Trp Asn Gly Glu His Thr Tyr Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Tyr Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Gly Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Arg Ser Phe Trp Gly Tyr Asn Val Glu Gln Arg Asp Phe Gly 100 105 110

Ser Trp Gly Gln Gly Thr Pro Val Thr Val Ser Ser 115 120

<210> 51

<211> 120

<212> PRT

<213> Lama qlama

<400> 51

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Arg Val Asn 20 25 30

Ala Met Gly Trp Tyr Arg Gln Val Pro Gly Asn Gln Arg Glu Phe Val 35 40 45

Ala Ile Ile Thr Asn Asp Thr Thr Asn Tyr Ala Asp Ala Val Lys Gly 50 55 60

Arg Phe Thr Ile Ser Thr Asp Asn Val Lys Lys Thr Val Tyr Leu Gln 65 70 75 80

Met Asn Val Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys Asn Thr 85 90 95

Val Leu Gln Thr Ser Arg Trp Asn Ile Pro Thr Asn Tyr Trp Gly Gln 100 105 110

Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 52

<211> 120

<212> PRT

<213> Lama glama

<400> 52

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Arg Val Asn 20 25 30

Ala Met Gly Trp Tyr Arg Gln Val Pro Gly Asn Gln Arg Glu Phe Val 35 40 45

Ala Ile Ile Ser Gly Asp Thr Thr Asn Tyr Ala Asp Ala Val Lys Gly 50 60

Arg Phe Thr Ile Ser Thr Asp Asn Val Lys Lys Thr Val Tyr Leu Gln 65 70 75 80

Met Asn Val Leu Glu Ser Glu Asp Thr Ala Val Tyr Tyr Cys Asn Ala 85 90 95

Val Leu Gln Thr Ser Arg Trp Ser Ile Pro Ser Asn Tyr Trp Gly Gln 100 105 110

Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 53

<211> 116

<212> PRT

<213> Lama glama

<400> 53

Gln Val Gln Leu Gln Asp Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ala Cys Val Ala Ser Gly Ser Ile Phe Ser Ile Asp 20 25 30

Val Met Gly Trp Tyr Arg Gln Ala Pro Gly Gln Gln Arg Glu Leu Val 35 40 45 Ala Thr Ile Thr Asn Ser Trp Thr Thr Asn Tyr Ala Asp Ser Val Lys 50 60

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Val Val Tyr Leu 70 75 80

Gln Met Asn Ser Leu Lys Leu Glu Asp Thr Ala Val Tyr Tyr Cys Asn 85 90 95

Ala Arg Arg Trp Tyr Gln Pro Glu Ala Trp Gly Gln Gly Thr Gln Val 100 105 110

Thr Val Ser Ser 115

<210> 54

<211> 115

<212> PRT

<213> Lama glama

<400> 54

Gln Val Gln Leu Gln Asp Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr His 20 25 30

Trp Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ser Thr Ile Asn Thr Asn Gly Leu Ile Thr Asp Tyr Ile His Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Ser Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Leu Asn Gln Ala Gly Leu Ser Arg Gly Gln Gly Thr Gln Val Thr 100 105 110

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Val Ser Ser
       115
<210> 55
<211> 126
<212>
     PRT
<213> Lama glama
<400> 55
Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
Ser Leu Arg Leu Ser Cys Ala Ala Ser Arg Arg Thr Phe Ser Gly Tyr
Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
Ala Val Val Ser Gly Thr Gly Thr Ile Ala Tyr Tyr Ala Asp Ser Val
    50
                        55
                                            60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr
65
                    70
                                        75
Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Leu Tyr Tyr Cys
                                    90
Ala Val Gly Pro Ser Ser Ser Arg Trp Tyr Tyr Arg Gly Ala Ser Leu
            100
                                105
Val Asp Tyr Trp Gly Lys Gly Thr Leu Val Thr Val Ser Ser
                            120
<210> 56
<211>
     123
<212> PRT
<213> Lama glama
<400> 56
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Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

10

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Glu Phe Glu Asn His 20 25 30

Trp Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ser Thr Val Asn Thr Asn Gly Leu Ile Thr Arg Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Tyr Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Ser Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Thr Lys Val Leu Pro Pro Tyr Ser Asp Asp Ser Arg Thr Asn Ala Asp 100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 57

<211> 124

<212> PRT

<213> Lama glama

<400> 57

Glu Val Gl
n Leu Val Glu Ser Gly Gly Gly Leu Val Gl
n Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Gly Thr Leu Ser Ser Tyr 20 25 30

Ile Thr Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Gly Ala Val Ser Trp Ser Ser Ser Thr Ile Val Tyr Ala Asp Ser Val 50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn His Gln Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asp Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Arg Pro Tyr Gln Lys Tyr Asn Trp Ala Ser Ala Ser Tyr Asn 100 105 110

Val Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 58

<211> 124

<212> PRT

<213> Lama glama

<400> 58

Gln Val Gln Leu Gln Asp Ser Gly Gly Gly Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Gly Thr Phe Ser Ser Ile 20 25 30

Ile Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val\$35\$ 40 45

Gly Ala Val Ser Trp Ser Gly Gly Thr Thr Val Tyr Ala Asp Ser Val 50 55 60

Leu Gly Arg Phe Glu Ile Ser Arg Asp Ser Ala Arg Lys Ser Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys $85 \hspace{1cm} 90 \hspace{1cm} 95$

Ala Ala Arg Pro Tyr Gln Lys Tyr Asn Trp Ala Ser Ala Ser Tyr Asn 100 105 110

Val Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 59

<211> 264

<212> PRT

<400> 59

Gln Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Asn Asn Tyr 20 25 30

Asn Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ala Ile Ser Trp Asn Gly Gly Ser Thr Tyr Tyr Asp Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Asn Asn Leu Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Asn Phe Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Cys Ala Ala Asn Pro Tyr Gly Ile Pro Gln Tyr Arg Glu Asn Arg 100 105 110

Tyr Asp Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Glu Pro 115 120 125

Lys Thr Pro Lys Pro Gln Pro Ala Ala Gln Val Lys Leu Glu Glu 130 135 140

Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys 145 150 155 160

Ala Ala Ser Gly Arg Thr Phe Asn Asn Tyr Asn Met Gly Trp Phe Arg 165 170 175

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Trp Asn 180 185 190

Gly Gly Ser Thr Tyr Tyr Asp Asp Ser Val Lys Gly Arg Phe Thr Ile 195 200 205

Ser Arg Asp Asn Ala Asn Asn Leu Val Tyr Leu Gln Met Asn Ser Leu 210 215 220

Asn Phe Glu Asp Thr Ala Val Tyr Tyr Cys Ala Cys Ala Ala Asn Pro 225 230 235 240

Tyr Gly Ile Pro Gln Tyr Arg Glu Asn Arg Tyr Asp Phe Trp Gly Gln 245 250 255

Gly Thr Gln Val Thr Val Ser Ser 260

<210> 60

<211> 264

<212> PRT

<213> Lama glama

<400> 60

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Thr Tyr 20 25 30

Asn Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Gly Ile Ser Trp Asn Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val 50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys 85 90 95

Ala Ser Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp $100 \hspace{1.5cm} 105 \hspace{1.5cm} 110$

Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Glu Pro 115 120 125

Lys Thr Pro Lys Pro Gln Pro Ala Ala Gln Val Gln Leu Gln Glu 130 135 140

Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys 145 150 155 160 Ala Ala Ser Gly Arg Thr Phe Ser Thr Tyr Asn Met Gly Trp Phe Arg 165 170 175

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Gly Ile Ser Trp Asn 180 185 190

Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val Glu Gly Arg Phe Thr Ile 195 200 205

Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr Leu Gln Met Asn Ser Leu 210 215 220

Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys Ala Ser Lys Gly Arg Pro 225 230 235 240

Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp Tyr Asp Tyr Trp Gly Gln 245 250 255

Gly Thr Gln Val Thr Val Ser Ser 260

<210> 61

<211> 264

<212> PRT

<213> Lama glama

<400> 61

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Thr Tyr 20 25 30

Asn Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Gly Ile Ser Trp Asn Gly Gly Ser Ile Tyr Tyr Thr Ser Ser Val 50 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Glu Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Val Tyr Tyr Cys 85 90 95

Ala Ser Lys Gly Arg Pro Tyr Gly Val Pro Ser Pro Arg Gln Gly Asp 100 105 110

Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Glu Pro 115 120 125

Lys Thr Pro Lys Pro Gln Pro Ala Ala Gln Val Lys Leu Glu Glu 130 135 140

Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys 145 150 155 160

Ala Ala Ser Gly Arg Thr Phe Asn Asn Tyr Asn Met Gly Trp Phe Arg 165 170 175

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Trp Asn 180 185 190

Gly Gly Ser Thr Tyr Tyr Asp Asp Ser Val Lys Gly Arg Phe Thr Ile 195 200 205

Ser Arg Asp Asn Ala Asn Asn Leu Val Tyr Leu Gln Met Asn Ser Leu 210 215 220

Asn Phe Glu Asp Thr Ala Val Tyr Tyr Cys Ala Cys Ala Ala Asn Pro 225 230 235 240

Tyr Gly Ile Pro Gln Tyr Arg Glu Asn Arg Tyr Asp Phe Trp Gly Gln $245 \hspace{1cm} 250 \hspace{1cm} 255 \hspace{1cm}$

Gly Thr Gln Val Thr Val Ser Ser 260

<210> 62

<211> 128

<212> PRT

<213> Lama glama

<400> 62

Ala Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Asp 1 5 10 15 Ser Leu Arg Leu Ser Cys Val Val Ser Gly Thr Thr Phe Ser Ser Ala 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Gly Ala Ile Lys Trp Ser Gly Thr Ser Thr Tyr Tyr Thr Asp Ser Val50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Val Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Asn Leu Lys Pro Glu Asp Thr Gly Val Tyr Thr Cys
85 90 95

Ala Ala Asp Arg Asp Arg Tyr Arg Asp Arg Met Gly Pro Met Thr Thr $100 \hspace{1cm} 105 \hspace{1cm} 110$

Thr Asp Phe Arg Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

<210> 63

<211> 124

<212> PRT

<213> Lama glama

<400> 63

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Ser Phe 20 25 30

Ala Ser Ile Gly Ser Ser Gly Ile Thr Thr Asn Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Gly Leu Cys Tyr Cys 85 90 95

Ala Val Asn Arg Tyr Gly Ile Pro Tyr Arg Ser Gly Thr Gln Tyr Gln 100 105 110

Asn Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 64

<211> 120

<212> PRT

<213> Lama glama

<400> 64

Glu Val Gln Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Leu Thr Phe Asn Asp Tyr 20 25 30

Ala Met Gly Trp Tyr Arg Gln Ala Pro Gly Lys Glu Arg Asp Met Val 35 40 45

Ala Thr Ile Ser Ile Gly Gly Arg Thr Tyr Tyr Ala Asp Ser Val Lys 50 60

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr Leu 70 75 80

Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys Val 85 90 95

Ala His Arg Gln Thr Val Val Arg Gly Pro Tyr Leu Leu Trp Gly Gln 100 105 110

Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 65

<211> 123

<212> PRT

<400> 65

Gln Val Gln Leu Val Glu Ser Gly Gly Lys Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asn Tyr 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Gly Ser Gly Arg Ser Asn Ser Tyr Asn Tyr Tyr Ser Asp Ser Val $50 \\ 55 \\ 60$

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Ser Thr Asn Leu Trp Pro Arg Asp Arg Asn Leu Tyr Ala Tyr 100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 66

<211> 125

<212> PRT

<213> Lama glama

<400> 66

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Asp $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Ser Leu Gly Ile Tyr 20 25 30

Arg Met Gly Trp Phe Arg Gln Val Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ala Ile Ser Trp Ser Gly Gly Thr Thr Arg Tyr Leu Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Thr Lys Asn Ala Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Val Asp Ser Ser Gly Arg Leu Tyr Trp Thr Leu Ser Thr Ser Tyr 100 105 110

Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

<210> 67

<211> 125

<212> PRT

<213> Lama glama

<400> 67

Gln Val Gln Leu Val Glu Phe Gly Gly Gly Leu Val Gln Ala Gly Asp 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Ser Leu Gly Ile Tyr 20 25 30

Lys Met Ala Trp Phe Arg Gln Val Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Ala Ala Ile Ser Trp Ser Gly Gly Thr Thr Arg Tyr Ile Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Leu Ser Arg Asp Asn Thr Lys Asn Met Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Asp Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Val Asp Ser Ser Gly Arg Leu Tyr Trp Thr Leu Ser Thr Ser Tyr 100 105 110

Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125 <210> 68

<211> 124

<212> PRT

<213> Lama glama

<400> 68

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Ser Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Pro Tyr 20 25 30

Thr Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Leu 35 40 45

Ala Gly Val Thr Trp Ser Gly Ser Ser Thr Phe Tyr Gly Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ala Ser Arg Asp Ser Ala Lys Asn Thr Val Thr 65 70 75 80

Leu Glu Met Asn Ser Leu Asn Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ala Ala Tyr Gly Gly Leu Tyr Arg Asp Pro Arg Ser Tyr Asp 100 105 110

Tyr Trp Gly Arg Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 69

<211> 131

<212> PRT

<213> Lama glama

<400> 69

Ala Val Gl
n Leu Val Glu Ser Gly Gly Gly Leu Val Gl
n Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Leu Asp Ala Trp 20 . 25 30

Pro Ile Ala Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Gly Val\$35\$ 40 45

Ser Cys Ile Arg Asp Gly Thr Thr Tyr Tyr Ala Asp Ser Val Lys Gly 50 55 60

Arg Phe Thr Ile Ser Ser Asp Asn Ala Asn Asn Thr Val Tyr Leu Gln 65 70 75 80

Thr Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys Ala Ala 85 90 95

Pro Ser Gly Pro Ala Thr Gly Ser Ser His Thr Phe Gly Ile Tyr Trp 100 105 110

Asn Leu Arg Asp Asp Tyr Asp Asn Trp Gly Gln Gly Thr Gln Val Thr 115 120 125

Val Ser Ser 130

<210> 70

<211> 126

<212> PRT

<213> Lama glama

<400> 70

Glu Val Gl
n Leu Val Glu Ser Gly Gly Gly Leu Val Gl
n Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp His Tyr 20 25 30

Thr Ile Gly Trp Phe Arg Gln Val Pro Gly Lys Glu Arg Glu Gly Val 35 40 45

Ser Cys Ile Ser Ser Ser Asp Gly Ser Thr Tyr Tyr Ala Asp Ser Val $50 \\ \hspace{1.5cm} 55 \\ \hspace{1.5cm} 60$

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Thr Leu Glu Pro Asp Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Gly Gly Leu Leu Leu Arg Val Glu Glu Leu Gln Ala Ser Asp 100 105 110

Tyr Asp Tyr Trp Gly Gln Gly Ile Gln Val Thr Val Ser Ser 115 120 125

<210> 71

<211> 128

<212> PRT

<213> Lama glama

<400> 71

Ala Val Gln Leu Val Asp Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Thr Ala Ser Gly Phe Thr Leu Asp Tyr Tyr 20 25 30

Ala Ile Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Gly Val 35 40 45

Ala Cys Ile Ser Asn Ser Asp Gly Ser Thr Tyr Tyr Gly Asp Ser Val 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Thr Ala Asp Arg His Tyr Ser Ala Ser His His Pro Phe Ala Asp 100 105 110

Phe Ala Phe Asn Ser Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120 125

<210> 72

<211> 120

<212> PRT

<213> Lama glama

<400> 72

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Tyr Gly Leu Thr Phe Trp Arg Ala 20 25 30

Val Ala Arg Asn Trp Gly Asp Gly Ser Thr Arg Tyr Ala Asp Ser Val 50 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Val Arg Thr Tyr Gly Ser Ala Thr Tyr Asp Ile Trp Gly Gln 100 105 110

Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 73

<211> 123

<212> PRT

<213> Lama glama

<400> 73

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Asp Gly Gly 1 5 10 15

Ser Leu Arg Leu Ser Cys Ile Phe Ser Gly Arg Thr Phe Ala Asn Tyr 20 25 30

Ala Ala Ile Asn Arg Asn Gly Gly Thr Thr Asn Tyr Ala Asp Ala Leu 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Thr Lys Asn Thr Ala Phe 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Asp Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Ala Arg Glu Trp Pro Phe Ser Thr Ile Pro Ser Gly Trp Arg Tyr 100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser 115 120

<210> 74

<211> 125

<212> PRT

<213> Lama glama

<400> 74

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Trp Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Pro Thr Ala Ser Ser His 20 25 30

Ala Ile Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val 35 40 45

Val Gly Ile Asn Arg Gly Gly Val Thr Arg Asp Tyr Ala Asp Ser Val 50 55 60

Lys Gly Arg Phe Ala Val Ser Arg Asp Asn Val Lys Asn Thr Val Tyr 65 70 75 80

Leu Gln Met Asn Arg Leu Lys Pro Glu Asp Ser Ala Ile Tyr Ile Cys 85 90 95

Ala Ala Arg Pro Glu Tyr Ser Phe Thr Ala Met Ser Lys Gly Asp Met 100 105 110

Asp Tyr	Trp Gly Lys Gly Thr Leu Val Thr Val Ser Ser 115 120 125	
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